

Claims

1. An arrangement for connecting a node in a distributed system containing fail-uncontrolled nodes, the arrangement comprising:

5 receiver means for receiving signals from another node of the system, and node guardian means coupled to the receiver means for controlling reception of signals thereat so as to reduce reception of uncontrolled transmission from another node of the system.

10 2. The arrangement of claim 1 wherein the node guardian means comprises:

switch means for receiving a plurality of input signals,
logic means coupled to the switch means for combining the plurality of received signals according to a predetermined logic function, and
control means coupled to the switch means for controlling application of the plurality of received signals to the logic means.

15 3. The arrangement of claim 2 wherein the predetermined logic function comprises an OR logic function.

20 4. The arrangement of claim 2 or 3 wherein the control means is arranged to control the switch means according to a predetermined TDMA schedule.

5. A distributed system comprising the arrangement according to claim 1, 2, 3 or 4.

25 6. The system of claim 5 further comprising at least one node having bus guardian means.

7. The system of claim 6 comprising:

a first node according to claim 1, 2, 3 or 4,
a second node according to claim 1, 2, 3 or 4,
a first group of nodes having bus guardian means, and
a second group of nodes having bus guardian means,

30 wherein the first group is coupled to the first and second nodes via a first common channel, and the second group is coupled to the first and second nodes via a second common channel,

the first group and the first node forming a first error containment region, and the second group and the second node forming a second error containment region.

8. The system of claim 7, the first group further being coupled to the first and second

5 nodes via a third common channel, and the second group further being coupled to the first and second nodes via a fourth common channel.

9. The system of claim 6 or 7 further comprising:

a third node according to claim 1, 2, 3 or 4, and

10 a fourth node according to claim 1, 2, 3 or 4,

wherein the third node is coupled to the first common channel, the fourth node is coupled to the second common channel, and the first, second, third and fourth nodes are cross-coupled, the third node being in the first error containment region, and the fourth node being in the second error containment region.

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10. The system of any one of claims 6-9 wherein the system is one of A-B:

A a TTP/C system,

B a FlexRay™ system.

20 11. A method of operating a node in a fail-uncontrolled distributed system, the method comprising:

providing receiver means receiving signals from another node of the system,

and

providing node guardian means coupled to the receiver means and controlling

25 reception of signals thereat so as to reduce reception of uncontrolled transmission from another node of the system.

12. The method of claim 11 wherein the node guardian means comprises:

switch means receiving a plurality of input signals,

30 logic means coupled to the switch means and combining the plurality of received signals according to a predetermined logic function, and

control means coupled to the switch means and controlling application of the plurality of received signals to the logic means.

13. The method of claim 12 wherein the predetermined logic function comprises an OR logic function.

14. The node of claim 12 or 13 wherein the control means controls the switch means
5 according to a predetermined TDMA schedule.

15. A method of operating a distributed system comprising the method of operating a node according to claim 11, 12, 13 or 14.

10 16. The method of claim 15 further comprising providing at least one node having bus guardian means.

17. The method of claim 16 comprising:

operating a first node according to claim 11, 12, 13 or 14,

15 operating a second node according to claim 11, 12, 13 or 14,

providing a first group of nodes having bus guardian means, and

providing a second group of nodes having bus guardian means,

wherein the first group is coupled to the first and second nodes via a first common channel, and the second group is coupled to the first and second nodes via a second common channel,

20 the first group and the first node forming a first error containment region, and the second group and the second node forming a second error containment region.

18. The method of claim 17, the first group further being coupled to the first and second nodes via a third common channel, and the second group further being coupled to the first and second nodes via a fourth common channel.
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19. The method of claim 16 or 17 further comprising:

operating a third node according to claim 11, 12, 13 or 14, and

operating a fourth node according to claim 11, 12, 13 or 14,

30 wherein the third node is coupled to the first common channel, the fourth node is coupled to the second common channel, and the first, second, third and fourth nodes are cross-coupled, the third node being in the first error containment region, and the fourth node being in the second error containment region.

20. The method of any one of claims 16-19 wherein the system is one of A-B:

- A a TTP system,
- B a FlexRay™ system.

5 21. An arrangement for connecting a node in a fail-uncontrolled distributed system substantially as hereinbefore described with reference to FIG. 2 of the accompanying drawings.

22. A distributed system substantially as hereinbefore described with reference to FIG. 3,
10 FIG. 4 or FIG. 5 of the accompanying drawings.

23. A method of operating a node in a fail-uncontrolled distributed system substantially as hereinbefore described with reference to FIG. 2 of the accompanying drawings.

15 24. A method of operating a distributed system substantially as hereinbefore described with reference to FIG. 3, FIG. 4 or FIG. 5 of the accompanying drawings.